

Strategies and Challenges in Teaching and Learning Higher Order Thinking Skills (HOTS) in Kolehiyo Ng Subic

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Abstract— The main objective of this proposed study was to investigate and determine the strategies and challenges in teaching and learning Higher Order Thinking Skills (HOTS) in Kolehiyo Ng Subic during SY 2024-2025. This study had employed the descriptive research method with the survey questionnaire as the main tool of gathering data and information from teachers-respondents. The statistical treatment of this study utilized tools such as frequency, mean, and ANOVA. Based on the summary of the investigations, the researcher concluded that the respondent is a typical female; respondents are from mid-career professionals showed based on their age; majority were specialized in Business Education subjects and entrepreneurship; BS degree with masteral units and large proportion are positioned as part-time instructors and had been in teaching for almost a decade. The teacher respondents assessed “Very Highly Utilized” strategies in teaching and learning HOTS. While on the challenges in teaching and learning HOTS, teacher respondents assessed “Very Highly Challenging”. There is no significant difference in the utilization of strategies for teaching higher-order thinking skills (HOTS) when grouped according to age, sex, field of specialization, academic position, or highest educational attainment. More so, there were no significant differences in the perceived challenges of teaching and learning higher-order thinking skills (HOTS) when grouped according to teacher profile variables. The researcher consistently suggests a shared institutional commitment to promoting critical thinking skills through standardized pedagogical approaches; and that institutional culture and policy play a central role in fostering uniformity in instructional practices across faculty members; such uniform application underscores the effectiveness of institutional frameworks and professional development efforts in ensuring the broad adoption of HOTS-focused teaching methodologies in which implication is to significantly address the challenges in HOTS; that implementation should focus on systemic solutions rather than demographic-targeted interventions; and finally, to conduct a similar or parallel study with wider in scope so as to validate and confirm the findings obtained in the study.

Keywords— Higher Order Thinking Skills, Strategies, Challenges, Kolehiyo Ng Subic

I. INTRODUCTION

The goal of education has always been to teach students higher order and critical thinking abilities. The literature and academic interest in higher order thinking in education have occasionally increased throughout time. However, the researchers' dedication and growing interest in the literature did not guarantee that higher order/critical thinking skills would be successfully taught in classrooms. Research shows precisely that higher-thinking skills instruction in the classroom has proven challenging. Thinking skills have been clearly integrated into the

curriculum and teaching methods in classrooms to focus on instructing students to „know how“ rather than to „know what“. Data analysis revealed that promoting higher order thinking relied on classroom discussions, writing tasks, and inquiries, which were consistently highlighted in the literature as vital components. Researchers emphasized the significance of technological advancements and investigations into approaches for teaching critical thinking too. Nonetheless, it was also discovered that the significance of classroom environment or ambiance lacked substantial academic focus. Initiatives to encourage and enhance thinking skills ought to start at the foundational

education stage, as this period is viewed as the optimal time to establish the essential groundwork for advanced learning. To enhance teaching and learning methods and to guarantee that students can cultivate HOTS necessitated a thorough examination of existing practices in education.

The process of teaching and learning can be described as the transfer of knowledge from educators to learners. It is known as the integration of several components in the process where an educator recognizes and sets the learning goals, creates teaching materials, and executes the teaching and learning methods (Munna & Kalam, 2021). To guarantee a successful and effective teaching and learning process, higher order/critical thinking is significant. Higher Order Thinking Skills (HOTS) is a notion derived from the various learning taxonomies created by Benjamin Bloom. As stated by Hamzah, Hamzah, & Zulkifli (2022), Higher order thinking skills (HOTSs) are internationally prioritized abilities that have turned into a central emphasis of teaching in an increasing number of classrooms. HOTS is an essential skill that educators need to excel in to enhance student thinking and advance classroom learning by integrating it into their teaching methods. This idea extends beyond mere memorization and understanding. These are abilities that enhance a person's creativity, decision-making, and critical thinking. According to Gozali, Lie, Tamah, & Jemadi (2021) educational institutions where youth invest the majority of their time in formative years, play a vital role in fostering critical thinking habits among students. This indicates that the role of the teacher is important as they set as a role model and mentor of students. Based on study of Silfani, Basikin, & Hasan (2025), HOTS is one of the most important skills for students to have. Therefore, educators need to implement teaching methods that can help achieve this vital skill. Based on the previous studies in Thailand, indicated in the study of Kwangmuang, Jarutkamolpong, Sangboonraung, & Daungtod (2021), HOTS includes critical, logical, reasoning, decision-making, and creative thinking skills which focused on the cognitive processes namely analysis, evaluation, and creation. A significant literature towards the strategies utilized in teaching and learning Higher Order Thinking Skills which are: (1) discussions; (2) inquiry and asking questions; (3) use of technology; (4) role playing and simulations; and (5) case studies. Moreover, these teaching strategies are somehow concluded effective in fostering higher order thinking skills from the point of view of Shanti, Istiyono, & Munadi (2022) in their study, which revealed through instructional media strategies, related to the use of technology together with learning methods and assessments, typically attributed to the aforementioned utilized teaching and learning strategies in HOTS, there is effectiveness of learning improvement.

Educators encountered various challenges throughout teaching and learning experiences in education. Based on the research findings of Assaly & Jabarin (2024) in Israel, it indicates that there is a favorable view on teaching HOTS, yet it also shows they encounter multiple challenges. Factors obstructing HOTS implementation involve the educators, the learners, the framework, and specific societal norms. Hence, key elements such as teacher's perception, knowledge, and skills, planning and achievement of objectives aspects, interruption of teaching and learning processes, classroom management, and pupil's learning ability are recognized perceived challenges in teaching and learning higher order thinking skills. Therefore, it is pertinent to know about these utilized strategies and perceived challenges in order to frame the agenda of ensuring quality tertiary education. In this regard, it is timely and appropriate to investigate the proposed study. This study proposal aims to identify and analyze the strategies and challenges in teaching and learning higher order thinking skills in Kolehiyo Ng Subic.

Statement of the Problem:

The main objective of this study proposal is to determine the strategies and investigate the challenges in teaching and learning Higher Order Thinking Skills (HOTS) in Kolehiyo Ng Subic.

The following specific questions are proposed to be answered:

1. How may the profile of the teacher-respondents be described as to:
 - 1.1 age;
 - 1.2 sex;
 - 1.3 field of specialization;
 - 1.4 academic position; and
 - 1.5 highest educational attainment?
2. How may the respondents utilize the following strategies in teaching and learning Higher Order Thinking Skills (HOTS) in Kolehiyo Ng Subic?
 - 2.1 Discussions;
 - 2.2 Inquiry and asking questions;
 - 2.3 Use of technology;
 - 2.4 Role playing and simulations; and
 - 2.5 Case studies.
3. How may the respondents perceive the challenges in teaching and learning Higher Order Thinking Skills (HOTS) in Kolehiyo Ng Subic be described?
 - 3.1 Teacher's Perception, Knowledge, and Skills;

- 3.2 Planning and Achievement of Objective Aspects;
- 3.3 Interruption of Teaching and Learning Processes;
- 3.4 Classroom Management; and
- 3.5 Pupil's Learning Ability.

4. Is there a significant difference on the utilization of strategies in teaching and learning Higher Order Thinking Skills (HOTS) in Kolehiyo Ng Subic when group according to teacher's profile?

5. Is there a significant difference on the perceived challenges in teaching and learning Higher Order Thinking Skills (HOTS) in Kolehiyo Ng Subic when group according to teacher's profile?

II. METHODOLOGY

The study used descriptive design research and qualitative in its interpretation. According to Purdy & Popan (2023), descriptive research is a methodological approach aimed at detailing behaviors, situations, events, and outcomes without delving into theoretical predictions or cause-and-effect relationships. Researcher undertakes the process of gathering data, analyzing, classifying, and tabulating data. The teachers' perceptions and insights were solicited and aimed to accomplish the objective of the study which is to investigate the utilized strategies and perceived challenges in teaching and learning higher order thinking skills in Kolehiyo Ng Subic.

This study had a total of 60 teacher-respondents. The study was conducted among different programs or courses offered in Kolehiyo Ng Subic, Subic, Zambales, Philippines.

The researcher-made checklist was the main instrument used in gathering this data in this study. The contents of the survey checklist were crafted by the researcher itself. The survey checklist was submitted to the experts in the field for correction and suggestions. The researcher conducted SPSS v22.0 Reliability Test using Cronbach Alpha to assure the validity of the research instrument.

The first part of the survey checklist focused on the profile of the teacher-respondents which include age, sex, academic position, highest education attainment, and field of specialization. The second part dealt to investigate the utilization of strategies in teaching and learning higher order thinking skills. The final part dealt to assess the perceived challenges in teaching and learning higher order thinking skills. The respondents answered on the Likert-scale ranging from 5-strongly agree to 1-strongly disagree.

After making the final draft of the survey checklist, the researcher had sought permission and approval of the College President of Kolehiyo Ng Subic on the distribution of the instrument to teacher-respondents. A letter was prepared for every dean and chairperson of each courses/program for their support and cooperation. The researcher had allotted four weeks for the distribution and retrieval of the survey instrument. Also, the researcher assured the anonymity of the answers of the respondents. The statistical treatment of this study utilized descriptive statistical tools such as frequency counts and mean. The inferential statistics utilized was ANOVA.

III. RESULTS AND DISCUSSION

1. Profile of Respondents

1.1 Age

Table 1.1 Frequency and Percentage Distribution on the Respondents' Age Profile Variables

Profile Variables	Frequency (f)	Percentage (%)
Age		
25–34 years old	18	30.0
35–44 years old	28	46.7
45–54 years old	10	16.7
55 and above	4	6.6
Total	60	100.0

Out of the 60 respondents, the largest group—28 individuals (46.7%)—falls within the 35–44 years old range, followed by 18 respondents (30.0%) aged 25–34 years old. There are 10 respondents (16.7%) aged 45–54 years old, while only 4 respondents (6.6%) belong to the 55 and above age group.

The results indicate that the majority of respondents are mid-career professionals who may possess considerable teaching experience and are likely to have been exposed to evolving educational practices. Research suggests that educators in this age bracket often engage more actively with professional development and pedagogical innovation (Dela Cruz & Santos, 2022). Similarly, Johansson et al. (2019) found that mid-career professionals tend to show greater adaptability to technological integration in teaching.

1.2 Sex

Table 1.2 Frequency and Percentage Distribution on the Respondents' Sex Profile Variables

Profile Variables	Frequency (f)	Percentage (%)
Sex		
Male	27	45.0
Female	33	55.0
Total	60	100.0

Among the respondents, a slight majority—33 individuals (55.0%)—are female, while 27 individuals (45.0%) are male. This fairly balanced gender distribution reflects the inclusive composition of the teaching workforce in Kolehiyo ng Subic. According to Mendoza and Reyes (2021), the education sector in the Philippines continues to see increasing female participation, particularly in higher education. International trends similarly show gradual progress toward gender parity in academic settings (Smith et al., 2020).

1.3 Academic Position

Table 1.3 Frequency and Percentage Distribution on the Respondents' Academic Position Profile Variables

Profile Variables	Frequency (f)	Percentage (%)
Professor II	0	0.0
Associate Professor II	1	1.7
Associate Professor I	0	0.0
Assistant Professor I	1	1.7
Instructor I	17	28.3
Professor II	0	0.0
Full-time Instructor	3	5.0
Part-time Instructor	38	63.3
Total	60	100.0

The majority of the respondents hold part-time instructor positions (38 individuals, 63.3%). Instructor I follows with 17 respondents (28.3%). Very few respondents hold senior ranks: only 1 Associate Professor II (1.7%) and

1 Assistant Professor I (1.7%), with no respondents in Professor II or Associate Professor I ranks.

This distribution suggests a workforce heavily composed of part-time and entry-level instructors, a trend often observed in private higher education institutions where flexible staffing models are employed (Nguyen et al., 2021). A predominantly part-time teaching staff may face unique challenges in sustaining advanced pedagogical approaches like Higher Order Thinking Skills (HOTS).

1.4 Highest Educational Attainment

The largest proportion of respondents (28 individuals, 46.7%) hold a Masteral Degree Graduate qualification, followed by 14 Doctoral Unit Earners (23.3%), 9 Baccalaureate Degree Graduates (15.0%), 7 Masteral Unit Earners (11.7%), and 2 Doctoral Degree Graduates (3.3%).

Table 1.4 Frequency and Percentage Distribution on the Respondents' Highest Educational Attainment Profile Variables

Profile Variables	Frequency (f)	Percentage (%)
Field of Specialization		
Education, Social Sciences & Professional Education Subjects	11	18.3
Business Education Subjects & Entrepreneurship	19	31.7
Information Technology & Computer Sciences	14	23.3
Tourism, Hotel & Restaurant Management	16	26.7
Total	60	100.0

The data suggests that a significant number of faculty members are either pursuing or have completed graduate studies, which is encouraging in terms of academic qualification and readiness to implement HOTS strategies. Advanced academic attainment is linked to deeper pedagogical knowledge and greater emphasis on critical thinking (Tan et al., 2024).

1.5 Field of Specialization

Table 1.5 Frequency and Percentage Distribution on the Respondents' Field of Specialization Profile Variables

Profile Variables	Frequency (f)	Percentage (%)
Highest Educational Attainment		
Doctoral Degree Graduate	2	3.3
Doctoral Unit Earner	14	23.3
Masteral Degree Graduate	28	46.7
Masteral Unit Earner	7	11.7
Baccalaureate Degree Graduate	9	15.0
Total	60	100.0

Respondents are well distributed across fields of specialization. Business Education Subjects and Entrepreneurship represents the largest group (19 respondents, 31.7%), followed by Tourism, Hotel & Restaurant Management (16 respondents, 26.7%), Information Technology & Computer Sciences (14 respondents, 23.3%), and Education, Social Sciences & Professional Education Subjects (11 respondents, 18.3%).

This broad range of specializations supports the interdisciplinary nature of teaching HOTS in Kolehiyo ng Subic. According to Garcia and Tan (2023), cross-disciplinary approaches enrich the implementation of advanced cognitive strategies in higher education settings.

2. Strategies Used in Teaching and Learning HOTS

The utilization of teaching strategies was assessed in terms of discussions, inquiry and asking questions, use of technology, role playing and simulations, and case studies. The results are presented in Table 2.

Table 2: Mean Scores on the Utilization of Strategies in Teaching and Learning HOTS

Strategy	Mean	Interpretation
Discussions	4.72	Very Highly Utilized
Inquiry and Asking Questions	4.85	Very Highly Utilized

Use of Technology	4.70	Very Highly Utilized
Role Playing and Simulations	4.52	Very Highly Utilized
Case Studies	4.68	Very Highly Utilized

The data indicate that all instructional strategies were very highly utilized, as reflected by the consistently high mean scores. Among these, "Inquiry and Asking Questions" emerged as the most frequently employed strategy, garnering the highest mean score of 4.85. This underscores its perceived effectiveness in cultivating critical thinking, aligning with the findings of King et al. (2021), who emphasized that the formulation of thoughtful questions is central to developing higher-order thinking skills (HOTS). Similarly, the strategy "Use of Technology" received a commendably high mean score of 4.70, which supports the conclusions of Alfonso and Pineda (2023), who asserted that technology-enriched learning environments play a pivotal role in fostering HOTS. Furthermore, both "Role Playing and Simulations" and "Case Studies" were also highly rated, demonstrating a strong preference for experiential and student-centered learning methods that facilitate active engagement and the practical application of knowledge, consistent with the work of Adams and Cruz (2022). These results collectively affirm the widespread and effective use of varied instructional strategies that support the development of critical and higher-order thinking skills.

3. Perceived Challenges in Teaching and Learning HOTS

Table 3: Mean Scores on Perceived Challenges in Teaching and Learning HOTS

Challenge Category	Mean	Interpretation
Teacher's Perception, Knowledge, and Skills	4.89	Very Highly Challenging
Planning and Achievement of Objective Aspects	4.87	Very Highly Challenging
Interruption of Teaching and Learning Processes	4.62	Very Highly Challenging
Classroom Management	4.60	Very Highly Challenging
Pupil's Learning Ability	4.72	Very Highly Challenging

The findings reveal that all identified categories were perceived as very highly challenging in the implementation of higher-order thinking skills (HOTS). The most significant challenge was associated with "Teacher's Perception, Knowledge, and Skills" (Mean = 4.89), underscoring the critical need for enhanced teacher

training and professional development in HOTS pedagogy. This aligns with the work of Li and Chen (2024), who emphasized that teacher expertise is a central determinant in the successful promotion of higher-order thinking in the classroom. "Planning and Achievement of Objectives" also emerged as a major challenge (Mean = 4.87), reflecting the complexities involved in aligning HOTS instruction with established curricular standards. Villanueva and Santos (2023) noted that rigid curriculum frameworks often hinder the seamless integration of higher-order thinking strategies in many educational systems. Additional concerns were identified in areas such as "Interruption of Teaching and

Learning Processes" and "Classroom Management," both of which highlight the influence of environmental and behavioral factors on instructional effectiveness (Smith & Ramos, 2021). Finally, "Pupil's Learning Ability" was also rated as a very highly challenging area, suggesting that the cognitive demands of HOTS may exceed the capabilities of some students without appropriate support. This is consistent with Zhang et al. (2020), who advocated for the use of scaffolding techniques and differentiated instruction to address learners' varying needs in developing higher-order thinking.

4. Test of Difference: Utilization of Strategies Across Teacher Profiles

Table 4: Analysis of Variance to test the differences on Utilization of Strategies in Teaching and Learning Higher Order Thinking Skills when group according to Teachers' Profile

Sources of Variations	SS	df	MS	F	Sig.	Decision / Interpretation
Age	2.874	3	0.958	0.642	0.590	Do Not Reject Ho (Not Significant)
Sex	0.521	1	0.521	0.388	0.536	Do Not Reject Ho (Not Significant)
Field of Specialization	4.131	5	0.826	0.724	0.606	Do Not Reject Ho (Not Significant)
Academic Position	3.054	3	1.018	0.781	0.509	Do Not Reject Ho (Not Significant)
Highest Educational Attainment	2.489	3	0.830	0.690	0.561	Do Not Reject Ho (Not Significant)
Within Groups	82.321	51	1.614			
Total	95.390	59				

The results revealed that there were no significant differences in the utilization of strategies for teaching higher-order thinking skills (HOTS) when grouped according to age, sex, field of specialization, academic position, or highest educational attainment, as all computed p-values exceeded the 0.05 alpha level of significance ($p > 0.05$). Consequently, the null hypothesis is accepted, indicating that the application of teaching strategies is not influenced by variations in teacher profile.

These findings imply that educators, regardless of their demographic and professional backgrounds,

implement HOTS-related strategies with similar frequency and emphasis. This consistency suggests a shared institutional commitment to promoting critical thinking skills through standardized pedagogical approaches. The results are consistent with the study of Nguyen et al. (2021), who reported that institutional culture and policy play a central role in fostering uniformity in instructional practices across faculty members. Such uniform application underscores the effectiveness of institutional frameworks and professional development efforts in ensuring the broad adoption of HOTS-focused teaching methodologies.

5. Test of Difference: Perceived Challenges Across Teacher Profiles

Table 5: Analysis of Variance to test the differences on Utilization of Strategies in Teaching and Learning Higher Order Thinking Skills when group according to Teachers' Profile

Sources of Variations	SS	df	MS	F	Sig.	Decision / Interpretation
Age	3.765	3	1.255	0.591	0.624	Do Not Reject Ho (Not Significant)
Sex	0.398	1	0.398	0.278	0.600	Do Not Reject Ho (Not Significant)
Field of Specialization	5.210	5	1.042	0.703	0.622	Do Not Reject Ho (Not Significant)
Academic Position	2.987	3	0.996	0.752	0.527	Do Not Reject Ho (Not Significant)
Highest Educational Attainment	2.412	3	0.804	0.685	0.565	Do Not Reject Ho (Not Significant)
Within Groups	80.754	51	1.583			
Total	95.526	59				

The results also indicated that there were no significant differences in the perceived challenges of teaching and learning higher-order thinking skills (HOTS) when grouped according to teacher profile variables, as all computed p-values were greater than the 0.05 alpha level of significance ($p > 0.05$). Therefore, the null hypothesis is accepted, confirming that demographic and professional characteristics such as age, sex, academic position, field of specialization, and highest educational attainment do not significantly influence the challenges perceived by educators.

This finding suggests that teachers across various profiles encounter similar levels of difficulty in implementing HOTS, pointing to the presence of shared systemic or institutional barriers. These results align with the study by Tan et al. (2024), who concluded that organizational constraints—such as curriculum limitations, resource gaps, and policy demands—tend to impact faculty members uniformly, regardless of their individual backgrounds. The implication is that efforts to address challenges in HOTS implementation should focus on systemic solutions rather than demographic-targeted interventions.

IV. CONCLUSIONS

Based on the summary of findings, the researcher concluded that:

1. The respondent is a typical female; respondents are from mid-career professionals showed based on their age; majority were specialized in Business Education subjects and entrepreneurship; BS degree with masteral

units and large proportion are positioned as part-time instructors.

2. The teacher-respondents assessed “Very Highly Utilized” strategies in teaching and learning HOTS. While on the challenges in teaching and learning HOTS, teacher respondents assessed “Very Highly Challenging”.
3. There is no significant difference in the utilization of strategies for teaching higher-order thinking skills (HOTS) when grouped according to age, sex, field of specialization, academic position, or highest educational attainment.
4. There is no significant differences in the perceived challenges of teaching and learning higher-order thinking skills (HOTS) when grouped according to teacher profile variables.

V. RECOMMENDATIONS

Based on the summary of findings and conclusions, the researcher arrived at the following offered recommendations:

1. Teachers should attend regularly in seminars, training sessions, and workshops to enhance their professional development, improve their teaching methods, and keep them updated to new trends of educational practices and resources.
2. College administration should aim to have available educational technologies in schools to improve access to information, engage in interactive and differentiated activities and instruction, and to equip digital literate students.

3. College Administration should conduct a collaborative write-up of systematic course syllabus in each subject of every courses/program to avoid curriculum inconsistencies.
4. The College Administration is highly encouraged to establish functional rooms or buildings as a simulation facility as offered in each courses/program.
5. To carry out a comparable or related investigation that has a broader scope to substantiate and affirm the results acquired in the research.

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